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ABSTRACT

The University of Akron's Reading Assessment Component (RAC) research study assessed the effectiveness of a computer-based literacy program, Principles of the Alphabet Literacy System (PALS), as an alternative to classroom instruction for functionally illiterate adults living in Summit County, Ohio. The RAC study assessed four objectives: (1) development of a pretest and posttest model to assess PALS; (2) measurement of quantitative and qualitative learning increases; (3) comparison of learning increases of PALS students to those of students in a selected adult basic education (ABE) program over the same time period; and (4) comparison of PALS program costs to the costs of a selected ABE program. Pretest/posttest scores were analyzed for a sample of 23 adults. Two client characteristics identified successful PALS participants: adult learners who scored at least a 75 on the Slosson Intelligence Test and those who completed at least 4 years of formal schooling. Six recommendations were made: extrinsic motivations should be used to improve attendance and lower dropout rates; a family literacy program should be established; quantitative and qualitative measures should be used to evaluate clients; follow-up telephone interviews should collect information from past clients; projected grade-level increases in reading achievement should be reevaluated; and greater care must be taken to enroll adults in appropriate literacy programs. (15 references) (NLA)

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Adult Literacy: An Evaluation Of A Successful Program

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Adult Literacy: An Evaluation Of A Successful Program

American workers must be properly trained to read and write if they are going to keep pace with the demands of today's jobs. In the workplace, new technologies and management styles are increasing the level of basic skills required of workers. However, an estimated 27 million adults in the United States can be considered functionally illiterate - their basic skills are below the fifth grade level. Most are unemployed, or are employed in entry-level, unskilled positions. (Project Literacy U.S., 1990).

In order to improve basic reading and writing skills, human service agencies are beginning to empower clients to overcome their communication difficulties by providing literacy instruction using the Laubach System and Principles of Alphabetic Literacy System (PALS). Laubach uses a progressive series of reading textbooks and the support of program volunteers to tutor adult learners in reading. PALS combines the power of a personal computer, infowindow, and videodisc to teach functionally illiterate adults to read and write during three phases of a 100 hour classroom program.

Specifically, the University's Reading Assessment Component (RAC) team compared Test of Adult Basic Education (TABE) scores of clients in the PALS program with clients in the Laubach program in order to assess adult literacy increases. In addition, RAC evaluated the success of just the PALS program in the County of Summit's Department of Human Services using multiple testing instruments and the "portfolio approach". ("Portfolio approach" is defined as the client's file folder of chronologically collected writings and test results.) The results of the PALS evaluation and Laubach comparison document literacy improvement by PALS clients following participation in this 5 month computer-based program at least with respect to a specific client profile on a short term basis.

Purposes of the RAC Evaluation. The purpose of the RAC research study was to assess the effectiveness of a computer-based literacy program titled PALS as an alternative to classroom instruction for functionally illiterate adults living in Summit County. The four specific RAC assessment objectives included: (1) Develop an appropriate pretest and posttest model to assess a computer-based adult literacy program; (2) Determine both quantitative and qualitative learning increases in an adult literacy population; (3) Compare learning increases of PALS students to a selected ABE program over the same time period; and (4) Compare PALS program costs to the costs of a selected ABE program.

RAC Evaluation Design. The evaluation was designed to measure the literacy results of the PALS program as objectively and accurately as possible. To accomplish this goal, RAC decided that quantitative and qualitative data would be collected using a portfolio approach and a control group. Thereafter, RAC determined that assessment of increases in reading ability would be based on pretest and posttest: (a) TABE scores from Akron and Canton; (b) Ekwall Informal Reading Inventory scores (starting points were determined by administering the San Diego Quick Assessment Test); (c) Wide Range Achievement Test results; (d) Dolch Word List scores; (e) the Roswell-Chall Blending Test, and (f) the Wepman Auditory Discrimination Test. Finally, RAC specified that the Slosson Intelligence Test would be administered and client writing samples would be collected.

Assessment Difficulties. An unavoidable problem that arose during assessment was client attrition and drop-out from participation in the PALS literacy program. During this thirteen month research study a total of 58 adults were referred to the PALS Lab in the Summit County Department of Human Services. However, 32 clients or 55% of the

program's total population stopped attending the computer-based instructional sessions for such reasons as SSI, incarceration, transfer into another literacy program, relocation, and employment. 43% of the PALS clients ceased participating in the program for unexcused reasons. Other clients were permitted to leave the program, despite having completed numerous assessment pretests.

Results of the RAC Evaluation. The demographic profile of the sample of 23 adults in Akron who were referred for literacy services during the twelve month study is summarized as follows: (a) The mean age was 34.7 years; (b) The oldest participant was 59 years of age; (c) The youngest client was 23 years old; (d) The group consisted of 12 females and 11 males (52% females and 47% males) for a total sample population of 23 adults; (e) The highest grade achieved by adults in this study averaged 9.7; (f) 65% of the group reported that they had been enrolled in special education programs; (g) Of the 23 adults in this study, only 22% stated that they were currently taking medication; and (h) All participants were unemployed during the 100 hour PALS program. T-tests comparing demographic data to changes in pretest and posttest scores indicated that the demographic characteristics of age, gender, special education placement, and medication were not good predictors of improved literacy scores. However, the variable of highest grade completed does correlate with client discrepancy scores.

Results of Assessment Objective 1: If there were no constraints operating with respect to test selection an ideal pretest and posttest model to assess a computer-based adult literacy program would likely include some of the following multiple testing instruments: (1) Achievement Tests - Adult Basic Learning Examination, California Achievement Test, Metropolitan Achievement Test, Nelson Denny Reading Test, Test of Adult Basic Education, Wide Range Achievement Test; (2) Criterion-Reference Tests - Stanford Diagnostic Reading Test, Woodcock Reading Mastery Test; (3) Intelligence Test - Individual - Slosson Intelligence Test, Stanford-Binet Intelligence Scales, Wechsler Adult Intelligence Scale; (4) Intelligence Test - Group - California Test of Mental Maturity, Culture Fair Intelligence Test; (5) Reading Survey and Diagnostic Tests - Bader Visual Discrimination Test, McCarthy Individualized Diagnostic Reading Inventory, Reading Miscue Inventory; (6) Screening Tests - Audiometer, Harris Test of Lateral Dominance, Keystone Visual Screening Tests.

Results of Assessment Objective 2: The quantitative learning increases in the adult population tested in this study indicated that: (1) Only 13% of the PALS clients were reading at or above the 5th grade level before entering the program; (2) 87% of the participants in the study were functionally illiterate before PALS; (3) PALS clients were not performing to their capacity as reflected in reading expectancy scores; (4) 41% of the PALS clients scored "adequate" on the Wepman Auditory Discrimination Test and 47% scored "adequate" on the Roswell-Chall Blending Test. Adequate scores on both tests reflect the strength of the learners phonics skills - the foundation of the PALS program; (5) Clients scored higher on all parts of the Ekwall (Silent) following their participation in the PALS program; (6) The higher the client's performance on the SIT the higher the individual's performance on the TABE and Ekwall posttests; (7) Small gains were made by PALS participants on the Dolch Test; (8) WRAT reading scores improved between pretesting and posttesting, however, spelling scores actually decreased slightly following enrollment in the PALS program; and (9) PALS clients experienced positive and significant improvements in TABE Vocabulary, Comprehension, and Total test scores.

The qualitative learning increases in the adult population surveyed in this study are reflected in client portfolios. The writing samples chronologically arranged in client

file folders and examined by RAC faculty revealed that during the course of the PALS program adult learners: (1) began to exhibit greater complexity in ideation; (2) gained greater control over mechanical processes such as punctuation and spelling; (3) expanded their writing repertoire from strictly personal narratives to include letters and creative stories.

Results of Assessment Objective 3: At the outset it should be noted that Dr. John Henry Martin and IBM recommend that adults should not be enrolled in a PALS program until they are able to satisfy specific entry requirements, including (Martin, 1986): a standardized reading score at or below a fifth grade level, an IQ rating of 75 or above, an inability to write a simple sentence, and a lack of any physical handicaps that interfere with learning such as hearing loss, vision impairments, or brain damage.

The "successful" PALS client in this study did experience approximately an 8 month gain in reading ability during the 100 hour program, as reflected in post TABE Vocabulary, Comprehension, and Total scores. Vocabulary skills improved by approximately 8 months, comprehension by 10 months, and total skills increased 9 months. While Akron PALS clients improved 9 months in total reading skills the Canton Laubach group increased their reading abilities by 1 year and 9 months. Thus, Laubach clients seem to have experienced a higher gain in reading achievement. T-tests revealed that the changes in TABE Total test scores for PALS and Laubach program participants were both positive and significant at $p = .002$.

Results of Assessment Objective 4: The PALS program appears to have an initially beneficial effect. However, it is a costly program. There are two main expenses involved: personnel costs and equipment costs. Costs per client were derived for the PALS program from the following ingredients based on current market values and replacement costs for a twelve month period: (1) Salary plus fringe benefits; (2) Facilities based on the replacement cost of a classroom with a life of twenty years, an interest rate of 7.5%, and an annualization factor of .0989; (3) Equipment costs amortized over 60 months; (4) Average monthly materials and supplies costs; and (5) Miscellaneous average monthly costs for energy, maintenance, administrative overhead, insurance, and training.

The effectiveness of the PALS instructional method was determined from the change in pretest and posttest TABE scores of PALS clients in comparison with those of the control group. When these results are combined with those for costs, a cost-effectiveness ratio was derived that showed a cost of \$1,605.00 per PALS student for a one-month improvement in test scores (Levin, 1983).

Discussion of Results: As the pretest and posttest scores of the PALS and Laubach groups are studied, attention needs to focus on the fact that the Canton participants possessed a higher skill level in vocabulary and comprehension upon entrance into the program, as demonstrated by TABE Total scores. However, it was beyond the scope of this study to establish a causal relationship between higher prerequisite skills and two year literacy increases. Thus, inferences based only on TABE Total scores from the Canton control group without additional diagnostic testing, intelligence evaluation, and demographic information should be made with caution.

The results of the study also need to be examined in light of the dearth of proven effective teaching and testing materials for adults. According to Metz in the *Journal of Reading*, "it appears that both standardized tests and competency-based assessment poorly serve the adult learner. Standardized tests are related to former failure in school, are intimidating, and give a one-sided view of a multisided problem. Competency programs assess competencies imposed on a learner rather than the learner choosing competencies that match his/her goals" (p. 469).

In addition, this discussion must recognize the technology integrated in the PALS program. According to Soifer (1990), to be literate in today's world, people must feel comfortable using computer technology. The PALS program seeks to accomplish this goal by integrating technology and learning. Adults participating in the program learn valuable reading and writing skills during the 100 hour program while acquiring technological training using the word processor that may one day make them self-supporting.

Conclusions

Profile: This research study, assessing adult literacy gains following participation in the PALS program, appears to identify specific client characteristics that contributed to an individual's overall success in the program. The client characteristics limited to the sample population in this study and determined by regression analysis are profiled in the following conclusions: *Conclusion 1. The "successful" PALS participant was an adult learner who scored at least a 75 on the SIT; Conclusion 2. The "successful" PALS participant was an adult learner who completed at least 4 years of formal schooling.*

Although the profile of "successful" PALS client is not a stable model because of the small sample size, the profile does serve to demonstrate that a learning community is being built by the Summit County Department of Human Services that is empowering clients to take an active role in determining their own future. In this effort, people are beginning to examine the assumptions that underlie the way in which "service" is defined by and for them. If learning increases and adult literacy improvements are going to continue through organized classes by human service agencies then it is imperative that clients referred to the PALS program come equipped with the prerequisite skills identified by Dr. John Henry Martin and IBM in order to experience lifelong learning and literacy success.

Collaboration: Collaboration was a motivating force behind this research project. Specifically, The University of Akron's College of Education and the Summit County Department of Human Services entered into their first contractual arrangement for professional services. In addition, the conceptual framework for the project represented a collaborative research effort by representatives from the College's departments of Elementary Education, Counseling and Psychology, and Special Education. The project was organized and executed in conjunction with numerous planning meetings, telephone conversations, and site visits.

Throughout the study, administrators, faculty, staff, and clients endeavored to cooperate fully with respect to the time and effort demands of the research design. Friendships were fostered, experiences were shared, and a level of frustration was experienced as a result of the testing, reporting, and interviewing schedules required by the study. Moreover, participants began to realize the political needs and overtones of the project results.

Based on the experiences of the participants, the following guidelines are proposed to help ensure productive collaborative projects for future teams: (1) Collaboration teams should be composed of professionals who are interested in group, not individual, research; (2) Team members should share a common philosophy with respect to assessment methods and evaluation techniques; (3) Project coordinators should identify clear, concise, feasible goals for the project that accurately reflect the available resources; (4) All collaboration participants should commit themselves to working within a specific timeline; (5) Team members should be required to attend regular meetings in order to enhance communication throughout the entire project; (6) Monthly budget reports should be distributed to all team members so that financial

expenditures can be monitored; and (7) Politicalization should be minimized by insulating team members from the influences of persuasive forces.

Recommendations

(1) As Balmuth (1989) recognizes, high rates of absenteeism and drop-out plague ABE programs. However, research indicates that effective recruiters including former PALS students, reading teachers, and reading tutors can be trained to attract program participants and support their regular attendance. Extrinsic motivation, such as incentive pay and food coupons, may be increased on the basis of attendance and achievement.

(2) Nickse, Speicher, and Buchek (1988) report in the Journal of Reading that literacy programs aimed at parents and their children have proven to be successful for both groups. The Akron Department of Human Services may, therefore, consider sponsoring a literacy program that seeks to break the illiteracy cycle of individuals and families by encouraging entire families to attend PALS classes.

(3) In addition, evaluating PALS participants with both qualitative and quantitative measures by implementation of the portfolio approach proved to be a helpful strategy. Folders were kept on each client so that diagnosticians and Lab staff were able to study the data from more than just one standardized test and examine a progressive, chronological series of writing samples.

(4) The Summit County Department of Human Services may continue to evaluate the effectiveness of the PALS program by collecting valuable follow-up information from past clients by telephone. Calls should be initiated several weeks after the beginning of the literacy instruction and could be used to determine whether the participant was satisfied with the initial instructional experience, and reasons, if any, for non-completion or dissatisfaction. Program administrators may then be able to determine weaknesses and remedy problems in the program.

(5) The RAC team also recommends that the testing division of IBM associated with the PALS program re-evaluate the projected grade level increases in reading achievement expected for adult learners in a 100 hour literacy program. As stated earlier in this report, this period is equivalent to just 3 weeks of daily instruction in a high school. This 100 hour program extended over as much as a nine month period for many of the participants studied in this project. Rate of retention needs to be considered when learning is spread out over such an extended period of time.

(6) Finally, it is important to recognize that greater care must be taken to enroll adults in the appropriate literacy program. Many of the individuals receiving the services of the Summit County Department of Human Services would likely benefit from enrollment in a "pre-PALS" and/or a "post-PALS" program. Clients who do not satisfy the PALS entry requirements identified by Dr. John Henry Martin and IBM and supported by this research study may appreciate the opportunity to develop or refresh their communication skills by participating in a slower paced, tutorial program with computer drill and practice exercises before entering PALS.

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